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SPECIFICATION FOR PERFORATED PLATES FOR DESICCATORS

UDC 542·47 : 666·591

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SPECIFICATION FOR PERFORATED PLATES FOR DESICCATORS

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Indian Standard
SPECIFICATION FOR PERFORATED PLATES FOR DESICCATORS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 9 June 1971, after the draft finalized by the Ceramicware Sectional Committee had been approved by the Chemical Division Council.

0.2 Desiccators are common laboratory items used for drying materials, kept in crucibles, basins and such other containers. For this the crucibles, basins, etc, are placed on a plate made of porcelain having perforations suitable to hold them firmly. Another type of desiccator plate over which granular material could be spread for drying has much smaller perforations throughout. In this standard both the material and dimensional requirements have been covered, keeping in view the sizes of desiccators preferred.

0.3 In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from DIN 12911 'Exsikkator platten' issued by Deutscher Normenausschuss (DNA), West Germany.

0.4 This standard has clause **4.1.1** which provides for agreement between the purchaser and the supplier.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for perforated plates for desiccators.

2. TERMINOLOGY

2.1 For the purpose of this standard, definitions given in IS : 2781-1964† shall apply.

---

*Rules for rounding off numerical values (*revised*).

†Glossary of terms relating to ceramicware.

3. TYPES

3.1 There shall be two types of plates, namely:

a) *Type 1* — suitable for crucible, basin, etc; and
b) *Type 2* — suitable for granular solids.

4. REQUIREMENTS

4.1 Material and Manufacture — Perforated plates for desiccators shall be made of dense, homogeneous porcelain body having suitable chemical and mechanical properties. The plates shall be glazed all over and the glaze shall be properly fitted to the body. All unglazed portions shall be finished smooth. The plates shall set in the desiccator properly without rocking.

4.1.1 Plates of both the types may be provided with legs for resting inside the desiccator if agreed to between the purchaser and the supplier.

4.1.2 The holes in Type 1 plates shall be such that crucibles placed in them do not rock or touch one another.

4.2 Shapes and Dimensions

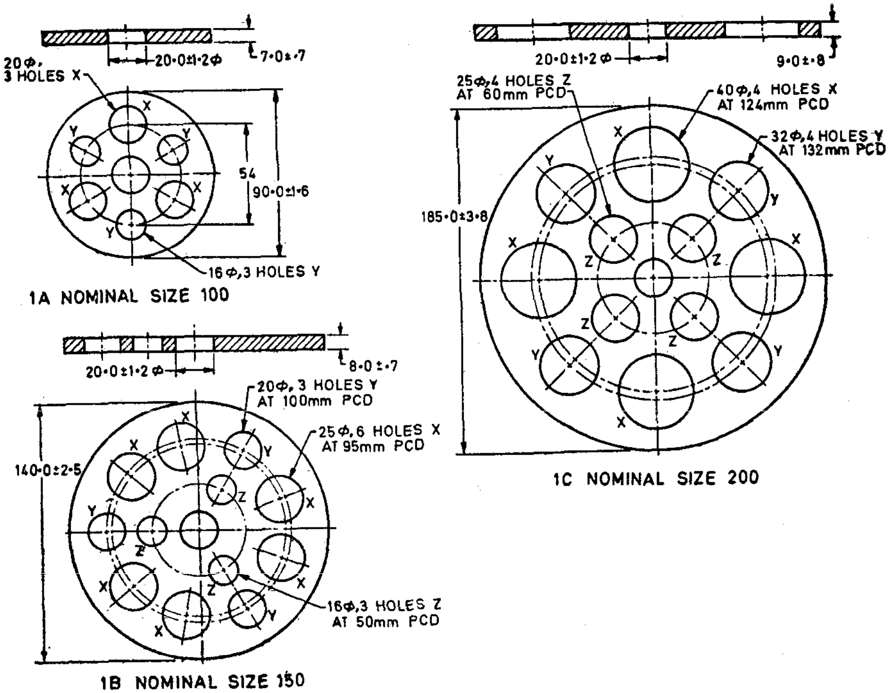
4.2.1 *Type 1 Plates* — The plates shall conform to the shapes shown in Fig. 1. These shall be in 3 nominal sizes, namely, 100, 150 and 200 mm and shall conform to the dimensions as given in Fig. 1.

4.2.2 *Type 2 Plates* — The plates shall be in 5 nominal sizes, namely, 100, 150, 200, 250 and 300 mm and shall conform to the shape and dimensions as given in Fig. 2 and Table 1.

4.2.2.1 The holes shall be situated on concentric circles and at equal distance from one another in the same circumference. The following distances between the holes are recommended when measured between the centres:

Nominal sizes of plates	*Distance between the holes*
mm	mm
100	17·5 ± 2·5
150	19 ± 1
200	19 ± 1
250	22·5 ± 2·5
300	22·5 ± 2·5

4.3 Resistance to Thermal Shock — Immerse the plates completely in a water-bath maintained at a temperature of 70 ± 2°C above that of


20Φ, 3 HOLES X
20·0±1·2Φ
7·0±·7
54
90·0±1·6
16Φ,3 HOLES Y
X
Y
20·0±1·2Φ
8·0±·7
20Φ, 3 HOLES Y AT 100mm PCD
25Φ,6 HOLES X AT 95mm PCD
140·0±2·5
16Φ,3 HOLES Z AT 50mm PCD
Z
20·0±1·2Φ
9·0±·8
25Φ,4 HOLES Z AT 60mm PCD
40Φ,4 HOLES X AT 124mm PCD
32Φ,4 HOLES Y AT 132mm PCD
185·0±3·8

1A NOMINAL SIZE 100

1B NOMINAL SIZE 150

1C NOMINAL SIZE 200

All dimensions in millimetres.

FIG. 1 PERFORATED DESICCATOR PLATES (TYPE 1)

the tap water and leave them submerged for a period of T minutes, where $T = 15 + 0{\cdot}7\ M$ (M being the mass of the plates in kg).

4.3.1 Withdraw them quickly and immerse completely in the bath containing tap water for T minutes. The time taken to transfer the plates from the hot bath to tap water-bath shall be not more than 30 seconds.

4.3.2 Repeat the cycle of heating and cooling five times.

4.3.3 The plates shall be considered to have satisfied the requirements of the test if they do not crack and the glaze does not show any crazing.

5. MARKING AND PACKING

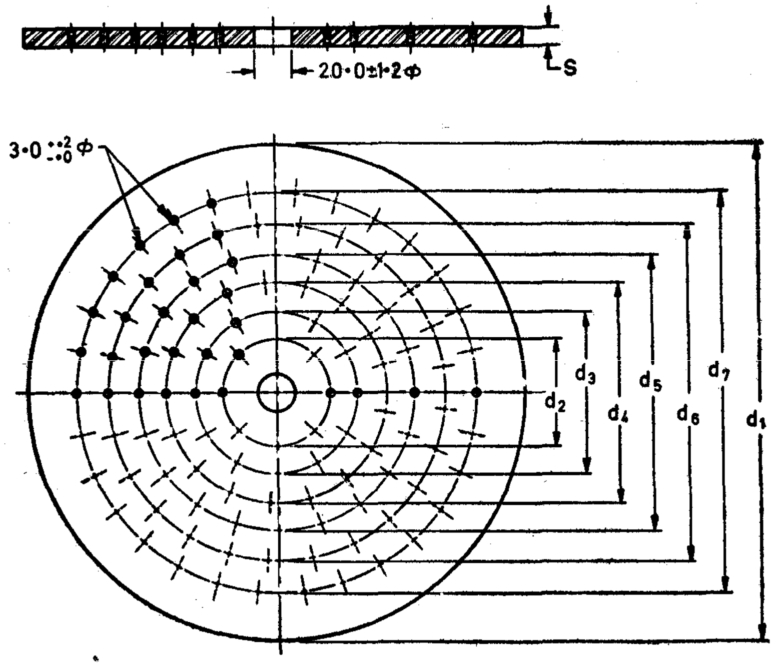
5.1 Marking — The plates shall be marked indelibly on the bottom or on the side with:

a) Type;
b) Nominal size; and
c) Manufacturer's name or trade-mark, if any.

TABLE 1 DIMENSIONS OF PERFORATED DESICCATOR PLATES (TYPE 2)

(*Clause* 4.2.2)

Sl No.	Nominal Size	d_1	s	d_2	No. of Holes	d_3	No. of Holes	d_4	No. of Holes	d_5	No. of Holes	d_6	No. of Holes	d_7	No. of Holes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		mm	mm	mm		mm		mm		mm		mm		mm	
i)	100	90±1·6	7±0·7	38	7	56	10	73	13	—	—	—	—	—	—
ii)	150	140±2·5	8±0·7	50	8	80	13	105	17	—	—	—	—	—	—
ii)	200	185±3·8	9±0·8	48	8	75	12	100	17	130	22	155	26	—	—
iv)	250	235±4·2	10±0·8	60	8	90	12	125	17	155	20	190	25	—	—
v)	300	280±4·6	10±0·8	60	8	90	12	125	17	155	20	190	25	225	30



All dimensions in millimetres.

FIG. 2 PERFORATED DESICCATOR PLATES (TYPE 2)

5.1.1 The plates may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5.2 Packing — The plates shall be suitably packed in cardboard boxes or wooden crates; preferably only one type and size of plate shall be packed in one box.

6. SAMPLING

6.1 The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in Appendix A.

APPENDIX A

(*Clause* 6.1)

SAMPLING OF PERFORATED PLATES FOR DESICCATORS

A-1. SCALE OF SAMPLING

A-1.1 Lot — All the articles of the same type, shape and dimensions and produced under essentially similar conditions of manufacture and offered for inspection at the same time shall be grouped together to constitute a lot.

A-1.2 The conformity of the lot to the requirements of this specification shall be ascertained separately for each individual lot. The number of articles to be selected for this purpose shall depend on the size of the lot as in col 1 and 2 of Table 2.

TABLE 2 NUMBER OF SAMPLES

NUMBER OF ARTICLES IN THE LOT N	NUMBER OF ARTICLES IN THE SAMPLE n	PERMISSIBLE NUMBER OF DEFECTIVE ARTICLES (CLAUSE A-2.1)	NUMBER OF ARTICLES TO BE TESTED FOR CLAUSE 4.3
(1)	(2)	(3)	(4)
Up to 50	8	0	2
51 to 100	13	1	3
101 ,, 500	20	2	5
501 ,, 3 000	32	3	8
3 001 and above	50	5	13

A-1.3 The samples shall be selected at random from the lot. To ensure randomness of selection, use shall be made of random number tables. If such a table is not available the following procedure shall be adopted:

> Starting from any article in the lot count them in one order as 1, 2, 3, ..., up to r and so on, where r is the integral part of N/n (N being the number of articles in the lot and n the number of articles in the sample). Every rth article thus counted shall be withdrawn to constitute the sample.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 Each of the articles in the sample selected in **A-1.2** and **A-1.3** shall be inspected for all the requirements other than that of resistance to thermal shock in clause **4.3.** An article failing to meet any one or more of the requirements tested shall be called a defective article. The lot shall be considered as conforming to this requirement if the number of defective articles in the sample does not exceed the number given in col 3 of Table 2. The lot having been declared conforming to this requirement, shall be tested for resistance to thermal shock as in **A-2.2.**

A-2.2 The number of articles to be tested for resistance to thermal shock shall be as indicated in col 4 of Table 2. These articles shall be chosen at random from those already selected in the sample. The lot shall be considered as conforming to this requirement if none of the articles tested fail in this requirement.

A-2.3 The lot shall be declared as conforming to all the requirements of this specification if it has been declared to be in conformity in **A-2.1** and **A-2.2.**

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